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In utero and early-life exposure of rats to a Wi-Fi signal: screening of immune markers in sera and gestational outcome

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Abstract

An experimental approach was used to assess immunological biomarkers in the sera of young rats exposed in utero and postnatal to non-ionizing radiofrequency fields. Pregnant rats were exposed free-running, 2 h/day and 5 days/week to a 2.45 GHz Wi-Fi signal in a reverberation chamber at whole-body specific absorption rates (SAR) of 0, 0.08, 0.4, and 4 W/kg (with 10, 10, 12, and 9 rats, respectively), while cage control rats were kept in the animal facility (11 rats). Dams were exposed from days 6 to 21 of gestation and then three newborns per litter were further exposed from birth to day 35 postnatal. On day 35 after birth, all pups were sacrificed and sera collected. The screening of sera for antibodies directed against 15 different antigens related to damage and/or pathological markers was conducted using enzyme-linked immunosorbent assay (ELISA). No change in humoral response of young pups was observed, regardless of the types of biomarker and SAR levels. This study also provided some data on gestational outcome following in utero exposure to Wi-Fi signals. Mass evaluation of dams and pups and the number of pups per litter was monitored, and the genital tracts of young rats were observed for abnormalities by measuring anogenital distance. Under these experimental conditions, our observations suggest a lack of adverse effects of Wi-Fi exposure on delivery and general condition of the animals.

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